



Selected Papers of William L. White

www.williamwhitepapers.com

Collected papers, interviews, video presentations, photos, and archival documents on the history of addiction treatment and recovery in America.

Citation: White, W. (2006). Recovery across the life cycle. *Alcoholism Treatment Quarterly*, 24(1-2), 185-201. Posted at www.williamwhitepapers.com

Recovery across the Life Cycle

William L. White

Emeritus Senior Research Consultant
Chestnut Health Systems
bwhite@chestnut.org

Abstract

There is a growing body of literature on addiction recovery, but the effects of age of recovery initiation on the prospects and patterns of addiction recovery remain relatively unexplored. The purpose of this article is to explore the prevalence of, and the qualitative differences in, addiction recovery across the developmental life cycle. The review will include the influence of age of recovery initiation on differences in recovery pathways, styles of recovery, developmental stages and recovery stability.

Key Words: alcoholism, addiction, age, life cycle, early onset, late onset

Introduction

Addiction-related scholarship has historically been either pathology-focused or intervention-focused. Only recently, has there been focused attention on the study of individuals who have achieved long-term resolution of alcohol and other drug problems. The pursuit of a recovery research agenda holds great promise, but the sheer

volume of questions to be answered regarding the processes of recovery initiation, consolidation, and maintenance is quite daunting (White, 2004). One sphere of such questions involves the effects of age of recovery initiation on the prospects and processes of addiction recovery. This article discusses what is currently known about recovery and developmental age and identifies key issues for continued research in this area. The article addresses the role of age of recovery initiation on the prospects of long-term recovery from alcohol and other drug problems, pathways and styles of long-term recovery, and the durability and quality of long-term recovery.

Age and the Prospects of Recovery

People develop alcohol and other drug (AOD) problems across the developmental life cycle. Two patterns of age-related onset of AOD problems have dominated the history of addiction treatment in the United States. The first pattern is marked by late adolescent onset of drinking, a slow acceleration of alcohol consumption and alcohol-related problems, and a

maturing of those problems into a point of crisis and help-seeking at mid-life. The second pattern was the adolescent onset of narcotic use, the progression of that use to physical dependence, and the rise of opiate-related problems that brought one to treatment during early adulthood. Most of what we know about addiction, treatment and recovery is based on the onset of alcohol and other drug use in mid-to-late adolescence and the flowering of that use into clinical disorders during early adulthood to mid-life (White, 1998). Two new patterns challenge this knowledge base: the early (pre-adolescent) onset of AOD use and subsequent problems and the growth of late-onset AOD-related problems.

Does early age of onset of AOD use and related problems affect the prognosis for long-term recovery? The age of onset of AOD experimentation and regular use has progressively declined (Dennis, Babor, Roebuck, & Donaldson, 2002; Stoltenberg, Hill, Mudd, Blow, & Zucker, 1999; Presley, Meilman, & Lyerla, 1991) for both adolescent males and females (Substance Abuse and Mental Health Services Administration, 1999). Pre-adolescent onset of AOD use is particularly evident in youth entering juvenile justice and addiction treatment facilities (U.S. Department of Justice, 1994). More than 80% of the 600 youth admitted to the recently completed Cannabis Youth Treatment study began regular substance use between the ages of 12 and 14 (Dennis, Titus, et al., 2002). Such early onset has many clinical consequences (White, Godley & Dennis, 2003). The National Longitudinal Alcohol Epidemiological Survey found that the risk of adult alcohol dependence was directly related to age of onset: before age 15 (40%), age 17 (24.5%), ages 18-19 (16.5%), ages 20-22 (10%). The risk of adult alcohol dependence increased an average of 9% for each decreasing year of age of onset (Grant & Dawson, 1997). Similar findings have been found on the relationship of age of onset of use of other drugs on the risk of adult drug dependence (Dennis, Babor, et al, 2002).

In addition to increasing the risk of developing a substance use disorder, early

age of onset of regular AOD use is associated with rapid problem development (Kreichbaun & Zering, 2000), greater problem severity and complexity (e.g., psychiatric comorbidity) (National Institute on Alcohol Abuse and Alcoholism, 2003; Arria, Dohey, Mezzich, Bukstein, & Van Thiel, 1995), less social support for subsequent recovery (Sobell, Sobell, Cunningham, & Agrawal, 1998), and poorer treatment outcomes as measured by rates of post-intervention relapse (Keller et al., 1992; Kessler et al., 2001; Chen & Millar, 1998). More studies are needed to confirm this relationship between lowered age of onset and reduced prognosis for long-term recovery and to identify the precise mechanisms that compromise these recovery outcomes (Chou & Pickering, 1992). Several mechanisms could be at work here, e.g., increased biological vulnerability of pre-adolescents to drug effects, developmental deficits resulting from early onset, lack of family/social support contributing both to problem onset and reduced recovery support resources. Those with late adolescent to young adulthood onset of AOD use who go on to develop AOD problems may have better recovery outcomes than those with early onset because of lower cumulative consumption, less psychiatric comorbidity, and greater social supports (Brennan & Moos, 1995; Sobell, et al., 1998).

If the long-term effects of precocious substance experimentation are confirmed by additional studies, the lowered age of onset of substance use may stand as one of the most socially and clinically significant drug trends of the past century. If poorer long-term recovery outcomes are confirmed, identifying the precise mechanisms that increase risks of problem development and compromise recovery outcomes will be crucial to the development of more effective prevention, early intervention and treatment strategies. Isolating those mechanisms and testing strategies for amelioration of their effects is an important research agenda.

Does recovery prognosis for late-onset AOD problems differ from the recovery prognoses for other patterns of onset?

Alcohol consumption declines in adulthood with advancing age, but alcohol exposure remains high (60% of adults between age 60-94 consume alcohol), and heavy drinking is reported in 13% of men and 2% of women over 60. Some 15% of older alcoholics also suffer from concurrent drug dependence (often related to prescribed medication). About two-thirds of older adults who drink heavily are alcoholics who began drinking in adolescence and whose alcohol problems progress into old age. The remaining third are characterized by a lack of risk factors (e.g., family history of alcoholism), a non-problematic relationship with alcohol through early and midlife, and the emergence of identifiable problems and consequences related to drinking late in life (Rigler, 2000).

Sometimes referred to as "late onset alcoholism," these patterns of problematic drinking are spawned by different vulnerabilities: age-related alterations in biological sensitivities to alcohol, self-medication of acute and chronic pain, use of alcohol as a balm for stressful life events (e.g., deaths, separations, retirement), or enmeshment in drinking social groups following retirement. Those elderly persons with shorter heavy drinking histories have better outcomes than those with longer heavy drinking histories (Rigler, 2000; Schutte, Brennan, & Moos, 1994; Atkinson, Tolson, & Tuner, 1990). Somewhat counter-intuitive is the finding that recovery among late-onset heavy drinkers is associated with increased stressors, suggesting that the continued presence of financial and health-related stressors may actually serve to enhance motivation for recovery maintenance (Moos, 1994).

Escalating life expectancies and shorter work lives will exert an unknown effect on the future prevalence of substance use disorders. What is clear is that new patterns of late-onset alcohol problems spring from complex etiological sources, unfold in diverse patterns and seem to respond to different treatment and support strategies. Without further refinements in the treatment of older adults, the misapplication of adult treatment philosophies and techniques may become as marked as the

earlier misapplication of such technologies to adolescents. Assuring that this does not occur is an important research and clinical practice agenda.

Does one's prognosis for successful long-term recovery differ depending on the age at which that recovery is initiated (separate from the issue of the age at which problems developed)? There are two emerging bodies of data that shed some light on this question.

The first body of data encompasses outcome studies of adolescent treatment. Some of the key findings of these studies include the following (see Risberg & White, 2003; White, Dennis, & Godley, 2002; Godley, Godley, Dennis, Funk, & Passeti, 2002):

- Many adolescents mature out of substance-related problems in the transition into adult role responsibilities (see later discussion of styles of recovery).
- For other adolescents, substance use develops into a chronic, debilitating disorder, recovery from which is often preceded by multiple treatment episodes spanning years.
- Most adolescents are precariously balanced between recovery and relapse in the months following treatment. The period of greatest vulnerability for relapse is in the first 30 days following treatment.
- The most common outcomes of adolescent treatment are enhancements in global functioning (increased emotional health and improved functioning in the family, school, and community) and reduced substance use (to approximately 50% of pre-treatment levels) rather than complete and enduring cessation of alcohol and other drug use.
- The stability of recovery is enhanced by post-treatment monitoring and periodic recovery checkups.

One of the most significant findings emerging from adolescent treatment outcome studies is the finding that the earlier the intervention (in terms of age and

months/years of use) with a substance use disorder, the better the clinical outcomes, the shorter the addiction career, and the longer and more stable the recovery career (Risberg & White, 2003).

The second source of information is that collected on treatment/recovery outcomes for older adults. Findings from this data include the following:

- Remission rates for older problem drinkers are comparable to those achieved by younger adults at short term (1-4 years) follow-up (Schutte, Brennan, & Moos, 1994), but older adults have lower remission rates than younger adults at long-term (10 years) follow-up (Schutte, Byrne, Brennan, & Moos, 2001).
- Remission in older problem drinkers is associated with less alcohol use, gender (female), marital status (married), employment status (unemployed), social support (less than that of unremitted drinkers) and presence of depression and acute and chronic health problems (Schutte, Brennan, & Moos, 1994; Schutte, Bryne, Brennan, & Moos, 2001)
- Goldman (1983), in a review of the cognitive impairments associated with alcoholism, concluded that most of the enduring deficits related to alcoholism following recovery were associated with older alcoholics with lengthy drinking histories. Most of the studies reviewed by Goldman found that cognitive functioning returned with sustained abstinence. While simple areas of cognitive functioning may be quickly regained in recovery, other areas such as tasks requiring more novel and rapid information processing are the last to return. The differences in findings across studies could well reflect differences in the ages of onset of addiction and recovery.

In summary, existing studies suggest that recovery rates are low among adolescents, increase through adulthood,

and then decline in late life. Granfield and Cloud's (1999) concept of *recovery capital* may help interpret these findings. Recovery capital is the amount and quality of resources that one can bring to bear to initiate and sustain recovery from addiction. What most distinguishes adolescents and older adults from adult populations is the failure to have developed sufficient recovery capital among adolescents and the loss of recovery capital among older adults. The adult rehabilitation model that seeks to resolve problems so that prior levels of functioning can be naturally assumed may be inappropriate for both adolescents and older adults. A shift in focus from problem elimination to building recovery capital for these groups might prove highly beneficial in enhancing recovery outcomes.

There is a body of literature of addiction and treatment careers (Frykholm, 1985; Hser, Anglin, Grella, Longshore, & Prendergast, 1997), but no comparable body of literature on recovery careers. A research-generated cartography of addiction recovery could plot the influence of multiple dimensions on the prospects and processes of long-term recovery, including the influences of age of problem onset and the age of recovery initiation.

Styles and Pathways of Recovery

Are there qualitative differences in the process of recovery initiation across the life cycle? There is a growing body of literature describing the varieties of recovery experience.

Incremental versus Climactic Change
Recovery from alcohol and other drug problems may be achieved through a process of incremental change over a considerable period of time (Prochaska, Norcross, & DiClemente, 1994), or by a sudden, life-transforming experience that is unplanned, vivid, positive and permanent (Miller & C'de Baca, 2001). Variations in such styles across the life cycle have not been rigorously evaluated. Early studies of conversion-like transformations of personal identity noted that most such climactic experiences occurred during the adolescent

years (Starbuck, 1901; James, 1902/1985), but modern studies of sobriety-inducing transformative change find such experiences happening primarily in adulthood (Loder, 1989; Miller & C'de Baca, 2001). In short, we know very little about differences in patterns of recovery initiation across the developmental life cycle.

Abstinence-based Recovery versus Moderated Recovery (Problem Resolution)
There is evidence that individuals resolve AOD problems through a variety of styles:

- Complete and enduring abstinence from those psychoactive substances previously associated with life problems with the substitution of other secondary drugs (e.g., alcohol, cannabis, caffeine) at sub-clinical levels (moderated use that does not meet DSM-IV criteria for substance abuse or substance dependence).
- Complete and enduring abstinence from all traditional “drugs of abuse.”
- Deceleration of AOD use to sub-clinical levels.
- Prolonged abstinence followed by initiation of sub-clinical levels of AOD use (White, 1996).

There is further evidence that the viability of these strategies differs considerably across the categories of personal vulnerability (e.g., family history of AOD problems), problem severity, problem complexity, and family and social supports. What is not clear is the prevalence of these styles across age groups and the degree to which shifts in these styles can occur over time in the same individuals. Many adolescents shift from use to non-use or from problematic to non-problematic use as they move through their teens and twenties into their thirties (Chen & Kandel, 1995), but the cultural stand of “zero tolerance” towards adolescent AOD use makes even the acknowledgement of this latter potential a “third rail” issue often avoided because of the potential damage to one’s professional career.

There is evidence that some elderly people with alcohol-related problems

resolve such problems by reducing the frequency, intensity and circumstances of their drinking (Heather & Robertson, 1983). In a 16-20 year treatment follow-up study, Nordstrom and Berglund (1987) found that active alcohol dependence declined and stable recovery (defined as sustained abstinence or sub-clinical social drinking) increased over time. As for transitions in recovery style, they found that 40% of the sample initially abstinent in the first six years following treatment later consumed alcohol at subclinical levels (no longer meeting diagnostic criteria for abuse or dependence) during the second decade of follow-up. In a ten-year follow-up study of older problem drinkers, Schutte and colleagues (2003) found that 63% of former problem drinkers were consuming alcohol without identifiable problems. The majority of this non-abstinent remission group did not have severe problem drinking histories. In a sixty-year follow-up of alcoholic men, Vaillant (2003) found 32% of his original sample abstinent and only 1% who had sustained controlled drinking. The differences in the two studies suggests that the likelihood of successful controlled drinking among older former problem drinkers declines in relationship to the severity of their original drinking problem, a finding consistent with earlier research (Hermos, Locastro, Glynn, Bouchard, & Labry, 1988). The most frequent patterns in the Vaillant (2003) study were the movement from problem drinking to abstinence and the movement from problem drinking to experiments with controlled drinking followed by abstinence.

The findings of a 33-year follow-up study of heroin addicts (Hser, Hoffman, Grella, & Anglin, 2001) challenges the theory of an inevitable age-related maturing out of drug problems. Hser and her colleagues found very stable patterns of heroin use over more than three decades. While many of those studied had achieved some periods of abstinence, only 46% were able to achieve five years of abstinence within the 33-year period studied, and the group as a whole showed high past-year rates for multiple drugs (heroin, 40.5%; marijuana, 35.5%; cocaine, 19.4%; and daily alcohol use,

21.1%). These findings suggest that addiction can span the aging process and constitute a lifelong condition. Recovery is not an inevitable product of aging.

Treatment-assisted versus Natural Recovery Most people with AOD problems do not seek treatment and most people who resolve such problems do so without treatment (Cunningham, Sobell, Sobell, & Kapur, 1995; Cunningham, Koski-Jannes, & Toneatto, 1999). There is a growing body of literature on this self-managed style of problem resolution known as natural recovery. A pattern of age-related “maturing out” of narcotic addiction was first described by Winick in 1962. Winick theorized that a maturation process within the life cycle of addiction led to cessation of drug use without intervention in a large portion of addicts. Subsequent studies confirmed that drug cessation increased with age but at a much lower rate than that predicted by Winick (Vaillant, 1966; Snow, 1973). Simpson and Sells (1990) found that opiate use did not cease simply as a function of age, but instead required an accumulation of consequences or a loss of energy required to sustain the opiate lifestyle.

In their review of 38 studies of natural recovery, Sobell, Ellingstad, and Sobell (2000) found two age-related patterns of natural recovery: 1) a young adult pattern of recovery associated with maturation and the assumption of adult role responsibilities, and 2) a later-life pattern of recovery associated with cumulative consequences of alcohol and other drug use. Natural resolution of alcohol problems in young adults is associated with getting married, remaining married, and becoming a parent; the failure to achieve natural resolution is associated with selection of and participation in a heavy-drinking social network (Labouvie, 1996). Those successful in natural recovery are also reported in some studies to be younger and to have had shorter duration of AOD problems than those with treatment-assisted recovery (Cunningham, et al., 1995; Saunders, Phil, & Kershaw, 1979). Studies of older problem drinkers note that more than 70% resolve their drinking problems

without professional help (Schutte, Nichols, Brennan, & Moos, 2003).

Fillmore and colleagues (1988) found age-related differences in the factors promoting natural recovery. They found that natural recovery among late adolescents and young adults occurred primarily due to a shift in group norms, whereas maturing out of middle-age drinking problems was much more linked to individual life events. In the latter category, remission in the 30s and 40s was often attributed to the influence of spouse or friends, where remission after that was more likely to be associated with concerns about health. Watson and Sher (1998) noted in their review of the natural recovery literature that adults with late onset alcoholism were more likely to achieve natural recovery than were those older adults with early onset alcoholism (See also Atkinson, et al., 1990). Age-related maturing out may differ among African Americans and Hispanics who are more likely to develop alcohol problems later in life. There is also evidence of gender differences in age-related remission patterns, with men achieving remission at higher rates than women from the late 20s to the mid-40s and women achieving higher rates of remission than men after the mid-40s (Fillmore, Hartka, Johnstone, Speigman, & Temple, 1988).

Recovery and Personal Identity Persons who resolve AOD problems may do so with a pro-recovery (defining themselves as an “alcoholic”/“addict” in “recovery”) or recovery-neutral identity (defining AOD problems in terms of a transient experience rather than in terms of their identity) (White, 1996). The degree to which such styles vary by age of recovery initiation has not been scientifically studied, but one would suspect such variations for adolescent-initiated recoveries and for recoveries initiated among older adults.

Peer-supported Recovery versus Solo Recovery Persons with AOD problems may resolve these problems with active support from other recovering people or with little or no contact with recovering people (White, 1996). Participation in mutual aid groups is associated with enhanced recovery rates (Emrick, Tonigan,

Montgomery, & Little, 1993; Humphreys, Wing, McCarty, Chappel, Gallant, Haberle, et al, 2004). Such participation produces an additive effect to professional treatment of AOD problems (Fiorentine & Hillhouse, 2000), but these effects are limited by failure to affiliate with mutual aid groups such as Alcoholics Anonymous and Narcotics Anonymous following treatment and high dropout rates following initial exposure (See McIntyre, 2000 for a detailed analysis; Mäkelä, et al, 1996; Kelly & Moss, 2003). There is little data on differences in recovery mutual aid group affiliation rates by age. There are studies confirming that adolescent participation in recovery mutual aid groups is associated with improved recovery outcomes following treatment (Johnson & Herringer, 1993; Margolis, Kilpatrick, & Mooney, 2000; Kelly, Myers, & Brown, 2002), but this finding is tempered by reports that failure to affiliate and high attrition rates following exposure to self-help groups is the norm among adolescents (Godley & Payton, in press). A recent membership survey of AA noted that 2% of AA members were under age 21 and that 13% of AA members were aged 61 or over (Alcoholics Anonymous, 1999). There are reports of attrition of older AA members due to the influx of younger members with different lifestyles and drug choices (Chappel, 1993). McIntyre (2000) also notes that many AA members stop regularly attending meetings after achieving stable sobriety, although they continue to see themselves as AA members and may attend occasional AA celebrations.

Studies finding that self-help participation increases in the months immediately following treatment but then rapidly erodes—from 71% to 43% in one recent study of adults (Kissin, McLeod, & McKay, 2003)—have yet to be replicated in multiple studies with populations of adolescents and older adults. Studies have confirmed that intensity of self-help participation (e.g., number of meetings, having a sponsor, sponsoring others, reading program literature, etc.) enhances recovery outcomes (Montgomery, Miller and Tonigan, 1995; Humphreys, Moos and Cohen, 1997). This intensity of mutual aid

involvement has been found in at least one study to apply to adolescents as well as adults (Margolis, Kilpatrick, and Mooney, 2000). The author could find no studies that measured the effect of intensity of participation on recovery outcomes specifically for older adults. The role of age in such affiliation and attrition processes and the effects of intensity of self-help participation among adolescents and older adults deserve serious investigation.

Quality and Durability of Recovery

Recovery and Global Health The term recovery spans removal of drugs from an otherwise unchanged life to a complete and positive transformation of one's character, identity and lifestyle. This broader transformation has been referred to as *emotional sobriety* (Wilson, 1953) or *wellbriety* (Coyhis, 1999). While there is growing interest in measuring these broader changes in personal identity, physical and emotional health, personal relationships, and social and occupational functioning, research has yet to fully illuminate transformations in global health over time in recovery and the differences in the degree of such changes based on the age of recovery initiation.

The short time periods of treatment follow-up and the lack of longitudinal studies of untreated populations in long-term recovery have provided us with only anecdotal reports on these larger dimensions of health in the later stages of recovery. Such studies could be revealing. For example, it is quite possible that the risk factors that contribute to early onset AOD use, the failure to master major developmental tasks due to early onset AOD use, and the lack of resulting "recovery capital" might not only diminish one's prospects of recovery but also substantially compromise the quality of recovery for those who achieve this status. The resulting higher rates of relapse and failure to achieve personal, relational and occupational health might require considerably different post-treatment monitoring and support strategies

compared to that needed for those with later onset of AOD use. Similarly, the successful treatment of late-onset AOD problems might require a much greater focus on achieving global health rather than a more restrictive focus on the elimination of AOD use.

Recovery Durability When is recovery stable (point at which the probability of future lifetime relapse is very low)? The alcoholism literature suggests that persons who reach the 4-5 year window of sustained sobriety have a low (under 15%) risk for future relapse in their lifetime (De Soto, O'Donnell, & De Soto 1989; Dawson, 1996; Jin, Rourke, Patterson, Taylor, & Grant, 1998). Studies on such stability in recovery from addiction to drugs other than alcohol are less definitive and focus primarily on post-treatment follow-up of heroin addiction. In a twelve-year follow-up study of individuals treated for heroin addiction, Simpson, Joe, Lehman, & Sells (1986) found a low (19%) rate of future relapse after three years of cessation of daily heroin use. The fragileness of recovery from opiate addiction is indicated by other long-term follow-up studies reporting that 20-25% of those who achieve five or more years of abstinence from heroin later returned to opiate use (Simpson & Marsh, 1986; Hser, et al., 2001). A recent study by Scott, Foss, and Dennis (in press) indicated that 83% of 1,326 clients followed up quarterly after discharge from addiction treatment experienced one or more recovery/relapse status transition over the three years of follow-up. Additional studies are required to determine if such recovery status volatility is greater or less for adolescents and older adults and whether these populations would benefit from more assertive models of post-treatment monitoring and support, active linkage to age-appropriate recovery support groups, and, when needed, early re-intervention.

Summary

This article has highlighted some of the literature on effects of age on the prospects and patterns of recovery from alcohol- and other drug-related problems. There appear to be significant differences in

early- and late-onset substance use disorders, and available data suggests differences based on the age of recovery initiation. The emerging recovery research agenda should include focused attention on: 1) the influence of age of problem development upon the prospects for long-term recovery, 2) differences in pathways and styles of recovery across the developmental life cycle, and 3) the effects of age in interaction with other significant factors (e.g., gender, ethnicity, drug choice) on recovery processes. That knowledge base will lay the foundation for specialized approaches to treatment and recovery support for our youngest and oldest service consumers.

Acknowledgement: Support for this article was provided by grants from the National Institute on Drug Abuse (Grants R01 DA15523, R01 DA014409, R01 DA015133) and the Illinois Department of Human Services (Office of Alcoholism and Substance Abuse Services) via the Behavioral Health Recovery Management project. The opinions expressed here are those of the author and do not reflect the opinions or policies of these agencies.

References

- Alcoholics Anonymous. (1999). *Alcoholics Anonymous 1998 membership survey*. New York: A.A. World Services.
- Arria, A. M., Dohey, M. A., Mezzich, A. C., Bukstein, O. G., & Van Thiel, D. H. (1995). Self-reported health problems and physical symptomatology in adolescent alcohol abusers. *Journal of Adolescent Health, 16*(32), 226-231.
- Atkinson, R. M., Tolson, R. L., & Turner, J. A. (1990). Late versus early onset problem drinking in older men. *Alcoholism: Clinical and Experimental Research, 14*, 574-579.
- Brennan, P. L. & Moos, R. H. (1995). Life context, coping responses, and adaptive outcomes: A stress and coping perspective on late-life

- problem drinking. In T. Beresford & E. Gomberg (Eds.), *Alcohol and Aging* (pp. 230-248). New York: Oxford University Press.
- Chappel, J. N. (1993). Long-term recovery from alcoholism. *Psychiatric Clinics of North America*, 16(1), 177-187.
- Chen, J., & Millar, W. (1998). Age of smoking initiation: Implications for quitting. *Health Reports*, 9(4), 39-46.
- Chen K., & Kandel, D. (1995). The natural history of drug use from adolescence to mid-thirties in a general population sample. *American Journal of Public Health*, 85(1), 41-47.
- Chou, S. P., & Pickering, R. P. (1992). Early onset of drinking as a risk factor for lifetime alcohol-related problems. *British Journal of Addiction*, 87, 1199-1204.
- Coyhis, D. (1999). *The wellbriety journey: Nine talks by Don Coyhis*. Colorado Springs, CO: White Bison, Inc.
- Cunningham, J. A., Koski-Jannes, A., & Toneatto, T. (1999). Why do people stop their drug use? Results from a general population sample. *Contemporary Drug Problems*, 26, 695-710.
- Cunningham, J., Sobell, L. Sobell, M., & Kapur, G. (1995). Resolution from alcohol problems with and without treatment: Reasons for change. *Journal of Substance Abuse*, 7, 365-372.
- Dawson, D.A. (1996). Correlates of past-year status among treated and untreated persons with former alcohol dependence: United States, 1992. *Alcoholism: Clinical and Experimental Research*, 20, 771-779.
- Dennis, M. L., Babor, T., Roebuck, M. C., & Donaldson, J. (2002). Changing the focus: The case for recognizing and treating marijuana use disorders. *Addiction*, 97 (Suppl. 1), S4-S15.
- Dennis, M. L., Titus, J. C., Diamond, G., Donaldson, J., Godley, S. H., Tims, F., et al. (2002). The Cannabis Youth Treatment (CYT) experiment: Rationale, study design, and analysis plans. *Addiction*, 97, S16-S34.
- De Soto, C. B., O'Donnel, W. E., & De Soto, J. L. (1989). Long-term recovery in alcoholics. *Alcoholism: Clinical and Experimental Research*, 13, 693-697.
- Emrick, D. C., Tonigan, J. S., Montgomery, H., & Little, L. (1993). Alcoholics Anonymous: What is currently known? In B. McCrady & W. R. Miller (Eds.), *Research on Alcoholics Anonymous: Opportunities and Alternatives* (pp. 41-78). New Brunswick, NJ: Rutgers Center on Alcohol Studies.
- Fillmore, K. M., Hartka, E., Johnstone, B. M., Speiglman, R., & Temple, M. T. (1988). *Spontaneous remission of alcohol problems: A critical review*. Washington, D.C.: Institute of Medicine.
- Fiorentine, R., & Hillhouse, M. (2000). Drug treatment and 12-step program participation: The additive effects of integrated recovery activities. *Journal of Substance Abuse Treatment*, 18, 65-74.
- Frykholm, B. (1985). The drug career. *Journal of Drug Issues*, 15, 333-346.
- Godley, M., Godley, S. H., Dennis, M., Funk, R., & Passeti, L. (2002). Preliminary outcomes from the assertive continuing care experiment for adolescents discharged from residential treatment. *Journal of Substance Abuse Treatment*, 23, 21-32.
- Godley, M. & Payton, J. (2004). The urgent need for continuing care with adolescents: Recent research and recommendations. *Counselor*, 5, 49-54.
- Goldman, M. S. (1983). Cognitive impairment in chronic alcoholics: Some causes for optimism. *American Psychologist*, 38, 1045-1054.
- Granfield, R., & Cloud, W. (1999). *Coming clean: Overcoming addiction without treatment*. New York: New York University Press.
- Grant, B. F., & Dawson, D. A. (1997). Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence. *Journal of*

- Substance Abuse*, 9, 103-110.
- Heather, N., & Robertson, I. (1983). *Controlled Drinking* (2nd ed.). New York: Methuen.
- Hermos, J. A., Locastro, J. S., Glynn, R. J., Bouchard, G. R., & De Labry, L. O. (1988). Predictors of reduction and cessation of drinking in community-dwelling men: Results from the normative aging study. *Journal of Studies on Alcohol*, 49, 363-368.
- Humphreys, K., Moos, R. J., & Cohen, C. (1997). Social and community resources and long-term recovery from treated and untreated alcoholism. *Journal of Studies on Alcohol*, 58, 231-238.
- Humphreys, K., Wing, S., McCarty, D., Chappel, J., Galant, L., Haberle, B., et al, (2004). Self-help organizations for alcohol and drug problems: Toward evidence-based practice and policy. *Journal of Substance Abuse Treatment* 26, 151-158.
- Hser, Y., Anglin, M., Grella, C., Longshore, D., & Prendergast, M. (1997). Drug treatment careers: A conceptual framework and existing research findings. *Journal of Substance Abuse Treatment*, 14(3), 1-16.
- Hser, Y., Hoffman, V., Grella, C., & Anglin, D. (2001). A 33-year follow-up of narcotics addicts. *Archives of General Psychiatry*, 58, 503-508.
- James, W. (1985). *The Varieties of Religious Experience*. New York: Penguin. (Original work published in 1902).
- Jin, H., Rourke, S. B., Patterson, T. L., Taylor, M. J. & Grant, I. (1998). Predictors of relapse in long-term abstinent alcoholics. *Journal of Studies on Alcohol*, 59, 640-646.
- Johnson, E., & Herringer, L. (1993). A note on the utilization of common support activities and relapse following substance abuse treatment. *Journal of Psychology*, 127, 73-78.
- Keller, M., Lavori, P., Beardslee, W., Wunder, J., Drs., D., & Hasin, D. (1992). Clinical course and outcome of substance abuse disorders in adolescents. *Journal of Substance Abuse Treatment*, 9, 9-14.
- Kelly, J. F., & Moos, R. (2003). Dropout from 12-step self-help groups Prevalence, predictors, and counteracting treatment influences. *Journal of Substance Abuse Treatment*, 24, 241-250.
- Kelly, J. F., Myers, M. G., & Brown, S. A. (2002). Do adolescents affiliate with 12-step groups? A multivariate process model of effects. *Journal of Studies on Alcohol*, 63, 293-304.
- Kessler, R. C., Aguilar-Gaxiola, S., Berglund, P., Caraveo-Anduaga, J., DeWitt, D., Greenfield, S., et al. (2001). Patterns and predictors of treatment seeking after onset of a substance use disorder. *Archives of General Psychiatry*, 58(11), 1065-1071.
- Kissin, W., McLeod, C. & McKay, J. (2003). The longitudinal relationship between self-help group attendance and course of recovery. *Evaluation and Program Planning*, 26, 311-323.
- Kreichbaun, N., & Zering, G. (2000). Adolescent patients. In G. Zering (Ed.), *Handbook of Alcoholism* (pp. 129-136). Boca Raton, LA: CRC Press.
- Labouvie, E. (1996). Maturing out of substance use: Selection and self-correction. *Journal of Drug Issues*, 26(2), 457-476.
- Loder, J. E. (1989). *The Transforming Moment*. Colorado Springs, CO: Helmers and Howard.
- Mäkelä, K., Arminen, I., Bloomfield, K., Eisenbach-Stangl, I., Bergmark, K., Kurube, N., et al. (1996). *Alcoholics Anonymous as a Mutual-Help Movement: A Study in Eight Societies*. Madison: University of Wisconsin.
- Margolis, R., Kilpatrick, A., & Mooney, B. (2000). A retrospective look at long-term adolescent recovery: Clinicians talk to researchers. *Journal of Psychoactive Drugs*, 32, 117-125.
- McIntyre, D. (2000). How well does A.A. work? An analysis of published A.A. surveys (1968-1996) and related

- analyses/comments. *Alcoholism Treatment Quarterly*, 18(4), 1-18.
- Miller, W. R., & C'de Baca, J. (2001). *Quantum Change*. New York: Guilford.
- Montgomery, H. A., Miller, W. R., & Tonigan, J. S. (1995). Does Alcoholics Anonymous involvement predict treatment outcome? *Journal of Substance Abuse Treatment*, 12, 241-246.
- Moos, R. H. (1994). Why do some people recover from alcohol dependence, whereas others continue to drink and become worse over time? *Addiction*, 89, 31-34.
- National Institute on Alcohol Abuse and Alcoholism. (2003). Underage drinking: A major public health challenge. *Alcohol Alert*, 59, 1-7.
- Nordstrom, G., & Berglund, M. (1987). Ageing and recovery from alcoholism. *British Journal of Psychiatry*, 151, 382-388.
- Presley, C. A., Meilman, P. W., & Lyerla, R. (1991). *Alcohol and Drugs on American College Campuses: Volume 1: 1989-91*. Carbondale, IL: Southern Illinois University Student Health Programs (The Core Institute).
- Prochaska, J. O., Norcross, J. C., & DiClemente, C. C. (1994). *Changing for Good*. New York: Avon.
- Rigler, S. K. (2000). Alcoholism in the elderly. *American Family Physician*, 61(5), 1710-1716.
- Risberg, R., & White, W. (2003). Adolescent substance abuse treatment: Expectations versus outcomes. *Student Assistance Journal*, 15(2), 16-20.
- Saunders, W. M., Phil, M., & Kershaw, P. W. (1979). Spontaneous remission from alcoholism: A community study. *British Journal of Addiction*, 74, 251-265.
- Schutte, K. K., Brennan, P. L., & Moos, R. H. (1994). Remission of late-life drinking problems: A 4-year follow-up. *Alcoholism: Clinical and Experimental Research*, 18(4), 835-843.
- Schutte, K. K., Byrne, F. E., Brannan, P. L., & Moos, R. H. (2001). Successful remission of late-life drinking problems: A 10-year follow-up. *Journal of Studies on Alcohol*, 62(3), 322-334.
- Schutte, K. K., Nichols, K. A., Brennan, P. L., & Moos, R. H. (2003). A ten-year follow-up of older former problem drinkers: Risk of relapse and implications of successfully sustained remission. *Journal of Studies on Alcohol*, 64(3), 367-374.
- Scott, C. K, Foss, M. A., & Dennis, M. L. (under review). Pathways in the relapse, treatment, recovery cycle over three years. *Journal of Consulting & Clinical Psychology*.
- Simpson, D. D., Joe, G. W., Lehman, W. E. & Sells, S. B. (1986). Addiction careers: Etiology, treatment, and 12-year follow-up outcomes. *Journal of Drug Issues*, 16(1), 107-122.
- Simpson, D. D., & Marsh, K. L. (1986). Relapse and recovery among opioid addicts 12 years after treatment. In F. Tims & C. Luekefeld (Eds.), *Relapse and Recovery in Drug Abuse* (NIDA Monograph 72, pp. 86-103). Rockville, MD: National Institute on Drug Abuse.
- Simpson, D. D., & Sells, S. B. (1990). *Opioid addiction and treatment: A 12-year follow-up*. Malabar, FL.: Krieger.
- Snow, M. (1973). Maturing out of narcotic addiction in New York City. *International Journal of the Addictions*, 8(6), 921-938.
- Sobell, L. C., Ellingstad, T., & Sobell, M. B. (2000). Natural recovery from alcohol and drug problems: Methodological review of the research with suggestions for future directions. *Addiction*, 95, 749-764.
- Sobell, M. B., Sobell, L. C., Cunningham, J. C., & Agrawal, S. (1998). Natural recovery over the lifespan. In E. L. Gomberg, A. M. Hegedus, & R. A. Zucker (Eds.), *Alcohol problems and aging* (NIAAA Research Monograph No. 33, pp. 397-405). Bethesda, MD:

- National Institute on Alcohol Abuse and Alcoholism.
- Starbuck, E. (1901). *The psychology of religion*. New York: Scribner's.
- Stoltenberg, S. F., Hill, E. M., Mudd, S. A., Blow, F. C., & Zucker, R. A. (1999). Birth cohort differences in features of antisocial alcoholism among men and women. *Alcoholism: Clinical & Experimental Research*, 23(12), 1884-1891.
- Substance Abuse and Mental Health Services Administration. (1999). *National Household Survey on Drug Abuse: Main Findings 1997*. Rockville, MD: Author.
- U.S. Department of Justice, Bureau of Justice Statistics. (1994). *Drugs and Crime Facts, 1994*. Retrieved from <http://www.ojp.usdoj.gov/bjs/dcf/contents.htm>
- Vaillant, G. (1966). A twelve-year follow-up of New York narcotic addicts: IV. Some characteristics and determinants of abstinence. *American Journal of Psychiatry*, 123(5), 573-584.
- Vaillant, G. (2003). A 60-year follow-up of alcoholic men. *Addiction*, 98, 1043-1051.
- Watson, A. L., & Sher, K. J. (1998). Resolution of alcohol problems without treatment: Methodological issues and future directions of natural recovery research. *Clinical Psychology: Science & Practice*, 5(1), 1-18.
- White, W. (1996). *Pathways from the Culture of Addiction to the Culture of Recovery*. Center City, MN: Hazelden.
- White, W. (1998). *Slaying the Dragon: The History of Addiction Treatment and Recovery in America*. Bloomington, IL: Chestnut Health Systems.
- White, W. (2004). Recovery: The next frontier. *Counselor*, 5(1), 18-21.
- White, W., Dennis, M., & Godley, M. (2002). Adolescent substance use disorders: From acute treatment to recovery management. *Reclaiming Children and Youth*, 11(3), 172-175.
- White, W., Godley, M., & Dennis, M. (2003). Early age of substance experimentation: Implications for student assistance programs. *Student Assistance Journal*, 16(1), 22-25.
- Wilson, W. (1953, January). Emotional Sobriety. *A.A. Grapevine*, 1-2.
- Winick, C. (1962). Maturing out of narcotic addiction. *Bulletin on Narcotics*, 14, 1-7.